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Journal of Dentistry.

VOL. II. NOVEMBER, 1883. No. 11.

ORIGINAL COMMUNICATIONS.

ANNUAL ADDRESS BEFORE THE AMERICAN DENTAL CONVENTION, AUGUST, 1883.

BY F. Y. CLARK, M. D., D. D. S.

Gentlemen of the American Dental Convention:

Former presiding officers have in times past eulogized us for what we have done and what we are doing, and were it not for the thorns that beset our path, which are avoided or skipped, I assure you I would not consume valuable time, or inflict your patience with the addition of one word to what has by eloquent tongues been formerly said. I may say, however, we are not now as in former years, when we had no college, no journal, no society, no library, no State law, no system of study—nothing with which to construct a scientific and honorable profession. On looking back through the long shadowy vista of years to when first I entered the wild and almost untrodden path that led to the practice of dentistry, I am surprised and almost lost in wonder at the heroic undertaking. Then, as some of you are aware, every practitioner's knowledge or what he knew (which was precious little) was kept as secure as if locked within an iron safe, and when any little bit of information was imparted, it was for a price, or as a very great favor, with a solemn promise that it must be held as a profound secret; and the younger or more ignorant, in order to capture any

item of interest or practice from the older or more knowing ones, had to do it through stealth as a thief, and if found out was not unfrequently denounced as such. Those were the halcyon days of spiral springs, wire plates, ivory teeth, turn-keys, extracting and transplanting. In some sections it was considered very irreligious to have a tooth replaced; the loss was providential—a mark of God's displeasure, and should not be corrected. Once, in my early practice, believing that a neighboring dentist had some secret in the preparation of amalgam, I called to know what he would take to impart it. Fifty dollars, and a bond not to practice in the same place, was the answer. On leaving, his office boy, who overheard the conversation, whispered that he would show me all about it for a dollar. The offer was gladly accepted, and the great secret consisted in mixing coin filings with a little mercury. Some years after this, when we got to using porcelain teeth, few of us, with the exception of those entering from the jeweler's bench, knew much about soldering. I remember calling on another member of the craft, and, very unusually, was informed he was glad to see me; that he had a soldering case on hand and wished me to drop the water *on the plaster to keep the teeth cool and from breaking* while he applied the heat with the blow pipe. At first I thought him a wag, or that he wished to draw me out, but on seeing several teeth with silver wire imbedded in a lump of plaster as large as a croquet ball, and a little canal back of the teeth to receive the water drops, I saw the whole was a reality, and asked if he ever succeeded in this way. "Oh, yes," said he, "with soft solder and a soldering iron; but as this is a particular case, I wish to use silver solder, and fear unless the water is carefully dropped the teeth may break." This man was doing quite a lucrative practice and, considsidering the times, I'm not blamable for leaving him with my cash account twenty-five dollars ahead for showing him what little I knew about soldering.

In those days, in many large towns and villages in some sections, there were few local dentists. Practice was mostly done by itinerants, remaining from a few days to a few weeks in a place, as practice held or waned. He who had the best and largest number of letters from M. D.'s, preachers and teachers, and who could make the greatest display of instruments, specimens, etc., generally came off first best. But sometimes all was not like "making love," or "hay in fine weather." About this time a few years of my life were confined to itinerancy and, at one time, when in a small out-of-the-way town in Mississippi, I was

doing quite well and having a good time with the boys and girls, when a buckeyed fellow from Ohio came along loaded with testimonials and an immense display of instruments and specimens. I believe, when looking back now, that we were about equal in ability; that it was about "tweedle dum and tweedle dee." I had a few weeks the start and was pretty well anchored, but his numerous letters and testimonials, with the display of beautiful instruments and a huge out-door specimen show case, fully counterbalanced the start. Of course we became rivals at once, and in no time every one in the village became interested and espoused the cause of one or the other. Being a member of the largest church, a kind of a church leader, and a good singer, made my rival the more dangerous. To get even in these matters I secured considerable puffing by doing some gratuitous work for the editor of the village paper, including the extracting of several roots and one sound incisor in order to insert others. As was the custom, I removed the root of the sound incisor, and dropped the crown in alcohol preparatory to using it as a pivot tooth, should occasion occur. Not long after this, a regular bowie-knife rough, who in a fight had broken one of his teeth, called to have it replaced. This man, although a desperado, was a very important character—a man of money and of influential connection, being, besides, a great talker. I found the editor's tooth a perfect match, so I used it, and the patient, paying his bill, went away delighted, vowing I was the greatest dentist living, and that my rival ought to get a *warning to leave* for his presumption or impertinence in attempting practice in the same place, and, I believe, had I expressed a wish to this end, the warning would have been given. But somehow it got out that he had the editor's tooth in his mouth, and as they were sworn enemies, it made it more disagreeable. Worse than this, the root not having been perfectly treated, commenced giving trouble; still worse, the whisperings about the case got to the editor's ears, and he informed me he wanted his tooth; that he knew where it was and that I must produce it within a stated time. But, worse than all, my patient, so loud in my praise, not getting relief, put himself in the hands of my rival, and I was quietly informed that, as soon as the patient was able to get about, I was to be taught a new way of inserting. I thought of many ways out of the scrape; to get the tooth I would have to kill the bowie-knife fellow, and if I failed to get it, there was the editor to fight; and if in any way I cleared these dilemmas, there was the new lesson to face. I was about even with the place finan-

cially, and after a sleepless night and dreams of bowie-knives, pistols, and all the armor of individual destruction, decided on Gil Blas' policy, and moved to a town about one hundred miles away in another state, which, in stage-coach times, was a long and safe distance. My ancient rival is now somewhat advanced, for he was ten years my senior, but is still living, occupying a high position in the ranks in Cincinnati, Ohio; and, should this ever get in print and meet his eye, I hope he will make an honest confession and let us know *how he worked up the bowie-knife chap, and if and how the editor got his tooth.*

I relate these little episodes of early practice to bring before you more forcibly the condition of our profession in these early times, that we may compare with the present, and feel thankful for the many advantages that now surround us; for, in the way of schools, dental literature, machinery, professional societies or conventions, and all the auxiliaries that make up and lead to a high order of scientific attainment and skill, we have advanced for the time beyond any profession that ever existed. It is unnecessary to go into detail to show this. You are all too familiar with our present statistics not to know it. But while we have thus advanced, and become in many sections so immense that we have, proteus-like, to branch out in several heads as specialties, let us stop and ask if this is a healthy growth. Are there no excrescences, deformities, or hidden imperfections, that should be removed? Yes, indeed, there are many, and failing to call your attention to them or pass them over as is usual, would be far more pleasant and agreeable; but this would be wilfully neglecting a duty becoming and befitting the position in which you have placed me.

First, let me call your attention to the condition of our colleges. They come far short in many respects of what they should be. The published requirements, as sent out all over the land, read well, but are rarely enforced or adhered to. The great fight is for the largest number and not for high order of attainment. According to the various announcements the requirements are from two to three years under a competent preceptor. But how few, how very few, of the great number turned out every year have received such instruction? To avoid or get around this most important of all requirements some institutions consider one term, or the instruction of a few weeks for an extra consideration in the office of some one of the professors, equivalent to the two or three years, *and thus candidates are received and graduated, and colleges made preceptors.* Any one who has been with a good preceptor two or three years must know something of

practical dentistry. I would rather this than two years in any college in the land. Mention could be made of diplomas being granted to young men who never had a preceptor, and who would fail in securing a license from any competent examining board of any State, but time will not allow detail. If a law existed which could be enforced, so that a charter could be withdrawn or suitable penalty inflicted for each and every violation, then it would be far better for college, student, and profession. It seems as though something of this kind will have to be done, and perhaps the best way to accomplish it is for our State and National societies to agitate and recommend it to our Legislatures. *Is it not as right and just to regulate colleges by law as it is to regulate those who practice the profession they teach?*

A second evil to which some attention should be called, is our dental depot system. The time has come when at least our disapproval should be urged to the monopolizing spirit of leading dental manufacturers; otherwise, our profession will become in many respects subservient to their wishes. Thousands may individually suffer the same or similar wrongs, but individual or single efforts will not right them. Number and unity give courage and strength, and therefore, amid the din of the times, political turmoil, strikes, rings and monopolies, when all is feverish excitement for gain from the Presidential chair to the smith at his anvil, when the whole fleet of fine arts, to whose moralizing influence we must look for all our better hopes of intellectual and social excellence is in danger of being wrecked in this monopolizing stream of corruption, it behooves us to see that our bark sails free. Much could be said on this subject, but as it is rather an outside issue, it is merely brought up for further discussion and action should you deem it worthy.

Another trouble closely connected, and with which the artistic and experienced operator encounters considerable vexation, is our artificial teeth. While they have improved in shape, they have fallen back in naturalness of shade and toughness of body. Many of the old natural shades, so easily procurable many years ago, cannot now be had. A snowy-white, saffron-yellow or sky-blue, are readily obtained, but when some pet case is on hand, and some of the delicate natural tints which characterized the Stocton or Jones, White & McCurdy teeth are wanted, we are more apt to find them among an old lot on hand than in our dental depots. Last winter, on making inquiry as to the disappearance of many of the old tints, I was informed by a reliable employé that the shades are not added now by hand with a

brush. as in former years; that all is done in the mould. If this is so, the sooner they get back to the old way and give us some of the lost shades, the better.

Again, much might be said as regards toughness and strength, for we all know they are not as tough as the plate teeth before the use of rubber. Frequent breaking puts patients to unfair expense and annoyance, and is frequently a serious reflection on the dentist. Therefore, let us again request our manufacturers to go back and regain the strength and lost shades.

But while picking flaws in our auxiliaries or tributaries, let us for a few moments look to ourselves and see if there is nothing undone that might be done. The old Spaniards, wishing to deter ambitious mariners from what they considered useless venture and research for unknown lands, inscribed on the rock of Gibraltar, the gate-way to the ocean, "Ne plus ultra"—nothing beyond. But when America was discovered they quickly obliterated the "*ne*," and had it read, "*plus ultra*"—more beyond." So we may say of our profession. There is more beyond, for, with all our science, advancement and improvement, the greatest discovery of all is yet to be made or satisfactorily demonstrated. Our America is yet beyond. I allude to the real and true cause of dental caries. We of the germ theory believe we have made the discovery, but it would seem as though we are unable to demonstrate this to the satisfaction of the majority. Deductions from microscopical investigations give strong reasons for believing that the misty shroud which has so long obscured scientific vision from a better view of the real and true knowledge as to caries, has been at last sufficiently rent to give a more satisfactory and intelligent view of the agents at work. As this is one of the live topics of the day, and everything pertaining to it is of vital interest, it is with great pleasure your earnest attention is called to the two valuable papers which will be read during this session—one by Dr. Boynton, on "Fermentation and Putrefaction," and the other by Dr. Stockwell, on "Micro-Organisms the Essential Factor in Dental Caries." Without some knowledge of these subjects, little or nothing is known of life, death, and disease, and these papers, from earnest thinkers and able investigators, will richly repay careful attention.

It seems in place, before closing, that mention of one or two of our journals, and a few words pertaining to this convention, should be made. As you know, it has been asserted and believed that no dental journal could sustain itself independent of depot or college

interest. This has always been a serious reflection. For, from the very nature of things, such a journal cannot be considered technically professional. This has been seen and felt by many of the best men in our ranks who, unless interested individually, financially held aloof; but it is safe to say there is no longer occasion for this, as we have now at least two independent journals, unhampered with depot or other interests. One of these, the New England Journal, has been in existence several years, has run the gauntlet, and is now on a safe foundation. It is liberal, scientific and professional, and no one who wishes to keep up with the live topics of the times can afford to be without it. The other, the Independent Practitioner, is now wholly dental, conducted in the interests of dentistry, and is what its name implies, independent, and therefore entitled to our confidence and support.

This convention, launched away back about 1854, richly laden with the good things and glad tidings of the profession, has sailed through storm and calm nearly thirty years, and, looking over the log, or as much of it as is now in our possession, leads to the belief that there are many matters which would be interesting and profitable to bring to notice, but time will not permit. For many years this staunch old ship, then the pride of our profession, sailed without competition; but, after a time, many thought the law regulating passage, or membership, was not sufficiently exclusive. Owing to this and minor grievances, the American Dental Association was launched, which received a large percentage of business, and is still in commission, doing good service. Notwithstanding this, the American Convention made her yearly trips, successfully weathering every storm, until, within a few years, her navigators came near losing her in the building of the National Congress. But, weathering this worst of all gales, she has at last made her twenty-ninth annual trip in safety, and is now safely at anchor in the harbor at Saratoga. On close inspection, although not up in many respects to the artistic requirements of the day, her hull is good and as sound as ever; and now that State Laws have been passed and none can take passage unless regularly or duly qualified, the main objection that was urged formerly being thus removed, there is little or no reason why this grand old craft, if properly repaired and navigated, should not be as profitable in all respects to the profession as in her most prosperous days. To this end, it is earnestly requested that a committee be appointed to carefully examine and report, if in their judgment it is best, to alter and repair, so

as to place this good old ship in first-class commission, or to give her an *honorable funeral, and rebuild;* and that this committee report at an early hour, so as to give ample time for due and decided action.

In conclusion, gentlemen, I trust something said will to some extent repay your kind and earnest attention, and that the same attention to other matters will enable you to leave feeling benefited and repaid for attending.

GOLD CROWNS FOR MOLAR AND BICUSPID TEETH—AN ARTICLE OF MANUFACTURE.

BY DR. M. RYNEAR, NEW YORK.

[Read before the American Dental Convention, at Saratoga Springs, N. Y., August, 1883.]

Mr. President and Gentlemen: To all observing practitioners it is very evident that the practice of attaching artificial crowns upon natural roots has taken a decided hold upon the attention of our profession, and it may be safely asserted we are rapidly approaching a new departure in artificial dentistry which will, to a great extent, if not entirely, do away with plate-work and extensive contour fillings.

It must be conceded that could our practice be relieved of the accumulation of clasps, collars, bands, etc., which have been devised for the support of materials coming in contact with the oral cavity, upon which artificial teeth are attached, and also of the inhuman and dangerous practice of packing gold for several consecutive hours, a great advance would be attained. The filthy and unhealthy condition of mucus membrane, which unfortunately is too often the result of the continual use of artificial plates, cannot but be productive of great injury to our patients, while the practice of packing gold, particularly in contour work, in order to produce a filling at once useful and ornamental, such time is necessarily expended and vital energy consumed, as must, if continued, prematurely and permanently impair the health of our best operators. Many of the most skilled and earnest workers in our profession have been zealous to bring about some improvement in this direction. Drs. Richmond, Bonwill, Weston, Buttner, Hows, Brown, Litch, and others, have designed different devices for this purpose, each possessing in a varying degree both beauty and utility. Much could be said in favor of each individual method; they claim our careful consideration, and shall receive such support as their merits may demand. They will be tried in the balance, scrupulously criticised, and in time prejudices will be forgotten and the fittest will survive.

What do we need? A material which can as nearly as possible be made to take the place of the natural organ, can be firmly attached to the roots of teeth—a non-absorbent, one not subject to the corrosive influence of the mouth, simple in construction and capable of being readily adjusted.

The device which I here present to your notice, it is hoped, possesses these important requisites, and is especially designed for molars and bicuspids.

It consists of a metallic crown, preferably gold or platinum, stamped and drawn from one unbroken piece of metal, and intended as an article of dental merchandise.

The cusps or grinding surface of these crowns are exact counterparts of the human teeth, while the surrounding surfaces or sides conform to the lines of their necks.

Three sizes of each crown are made, enabling the selection of one which will so nearly fit the outline of the root as to require but a slight compression of its sides to perfect it.

When the articulation is normal, the crown can readily be made to articulate by removing, with festoon-cutters or file, sufficient of their length at different points.

In cases of abnormal articulation, the top or grinding surface should be removed with spring-saw, after which the lower, or band portion, may be fitted to the root and the grinding portion replaced with wax —or, closing the mouth, the crown will adjust itself. Both pieces should then be removed together and, after embedding in plaster and sand, be reunited.

Should some slight alternation be needed in the occlusion of the cusps, this can be readily accomplished by first flowing solder in the interior of the crown at such points and afterwards removing from its outer surface whatever may be required.

The attachment of gold crowns to the roots of teeth, when the natural crown is partially or entirely lost, is an operation the practicability of which has already been thoroughly tested.

In the hundreds of cases where they have been used, success always followed when good judgment and care was bestowed. Such being the case, it is but reasonable to presume that the principal obstacle to their more general use has been the want of time to properly construct them.

Up to the present, the more generally accepted method of performing this work has been to first carefully fit a small strip of gold to the

root and cement the ends with solder, thus constructing the band or sides—the cusps or grinding surface being swedged and afterwards soldered to the band.

This operation necessarily consumed considerable time, and was attended by many difficulties. The utility of the work was also seriously impaired by the stiff joints caused by the solder, it interfering with the perfect adaptation of the grinding portion of the sides.

The following advantages are claimed for the manufacture of crowns over those made by hand:

First: They are made from one unbroken piece of metal—no solder being used, thus enabling *a perfect adaptation of all its parts.*

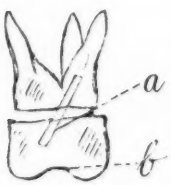
Second: They relieve the dentist of the necessity of constructing them, thereby saving annoyance and time to both the operator and patient.

Third: The operation is more perfect in every detail and presents a better appearance when completed.

Fourth: It places in the reach of all that which heretofore has been confined to a limited few.

Thanking you, gentlemen, for your kind attention, I submit the crown to you, believing it is destined to occupy in this class of work the same relative position as porcelain teeth do to plate work—no more, no less.

NOTE. In applying the crown, the following method is advised: Take an impression of both upper and lower teeth, articulate and remove plaster from around the margins of the affected tooth to the depth it is desired the crown should pass beneath the gum. By fitting the crown first to this plaster model, very little trouble will be found in adjusting it to the root.



A small gold or platinum screw should be inserted in the roots at such an angle as indicated by *a* in the drawing, and a hole made in the crown at some accessible point, say *b*, to allow the escape of surplus cement. Should sufficient of the crown remain to form an under-cut, no screw will be required. Care should be taken to thoroughly dry the tooth and a small quantity of powdered oxide placed upon the margin of the gum to absorb whatever moisture may still remain. Mix oxide phosphate to the consistency of thick cream and partially fill the interior of the metal crown; also place a small portion upon the root,

being careful to cover the pin or fill the under-cut. Now carefully adjust the crown and close the mouth to insure its proper occlusion. Before the cement hardens, care should be taken to remove all surplus that might escape around the edges of the crown beneath the gum. The hole in the crown can be filled with gold at any time after the cement hardens.

A HISTORY OF DENTISTRY.

BY GEORGE H. PERINE, D. D. S., NEW YORK.

[Continued from page 273.]

French Practitioners and their Methods in the Present Century.

Although the improvements which were made in operative and mechanical dentistry during the latter portion of the eighteenth and the first few years of the present century did not follow one upon the other in rapid succession, and were by no means numerous, it must at least be acknowledged that many of them were exceedingly valuable. What surprises us not a little, however, is the fact that human and animal teeth, mounted upon hippotamus ivory and other substances, continued for so long a period to constitute the material from which artificial dentures were made.

To Debois de Chamant, a French practitioner of considerable celebrity, is credited the invention of porcelain teeth. He published, as early as 1789, a dissertation on the advantages of employing incorruptible material in the manufacture of artificial teeth. It has been asserted that the idea of porcelain teeth originated with an apothecary named Duchatean, but it is now generally believed that Chamant was the inventor of them, he having obtained a patent upon them in both France and England. The invention was violently opposed by many practitioners, with whom Chamant maintained a warm controversy for several years. He subsequently went to England, where he practiced his profession until a short time before his decease. His invention was not generally adopted by the specialty, who adhered to the old method, until Tonzis produced finer and more perfect porcelain teeth; many of the fixtures made by him were considered at the time unequalled in any part of the world.

Prominent among French writers was Baum who, in 1800, published a very elaborate treatise on the first dentation. It was pronounced a

very able production. He also issued in 1806 a treatise on the semiology of the mouth, and in 1808 wrote a series of articles on the diseases of the teeth. He possessed a keen perception, and was throughout his life a careful student.

Joseph Jean Francois Le Maire did much to assist the profession in its progress. He was born at Mayenne, March 8th, 1782. His father was a prominent surgeon in Brittanny, and young Le Maire doubtless inherited many of his talents from him. He completed his medical education in Paris, and soon after turned his attention exclusively to the practice of the specialty of dentistry. He made a number of inventions and improvements in dental instruments, and was also the author of the following works: "Treatise upon the Teeth Physiologically," "Natural History of the Diseases of the Teeth," "Memoirs Relative to the Art of Dentistry," and "The Ladies' Dentist," a book intended for the perusal of mothers, and containing advice to them, and information relative to the care of their children's teeth. Le Maire was dentist to the King of Bavaria, a Knight of the Legion of Honor, and a member of the Order of St. Herbert. He died at Maison Alfort, Feb. 22d, 1834.

Louis Laforgue, although a graduate of medicine, devoted himself almost exclusively to the practice of the specialty of dentistry in Paris at the opening of the nineteenth century. He was a man possessed of a very generous nature, and contributed his services gratuitously to the poor of the Department of the Seine. The writings of M. Laforgue contain many observations and precepts held by sound practice. In one of his productions, he advanced the theory that many of the diseases attributed to the oral cavity are really the outgrowth of constitutional defects. Most of his writings were published in Paris between 1788 and 1816.

J. R. Duval was a dentist of distinction, and a very able writer. He published between the years 1802–28 several dental volumes (a list of which will be found elsewhere), beside which he at intervals contributed able articles to the professional journals of his day. He was born at Argentan, in Normandy, November 12th, 1758, and received a thorough medical education. He was a member of the Academy of Medicine, and died in Paris, May 16th, 1854.

Another prominent French dentist at the beginning of the present century was J. B. Gariot. He was the author of "A Treatise on the Diseases of the Mouth, Comprising its Structure and Functions, the Means of Preserving it in Beauty and Health, and Operations Apper-

taining to the Dental Art." This excellent work was published in Paris in 1805, and was subsequently translated into English. So prominent did Gariot stand in his profession that he was appointed dentist to the King of Spain, member of the Royal College of Surgery at Madrid, and associate member of the Society of Medicine, Paris.

In 1807, a work entitled "The Arts of the Dentist," from the pen of M. Maggiolo, made its appearance. It won much popularity and is even now held in considerable estimation as a book of reference.

"A Treatise on the Anatomy and Physiology of the Teeth; or, The New Theory of Dentation," was issued in Paris in 1817. The work was very highly spoken of at the time, and still holds a favorite place upon the library shelf. E. R. Serres was its author.

Passing over a number of French practitioners and writers of more or less prominence, we find ourselves drawing nearer our own time, and the names of Blandin, Legros, Magitot, Forget, Oudet and others, stand prominently before us as able contributors to the modern literature of the profession, whose works have been translated into English and published in this country.

That the specialty of dentistry, in comparison with other branches of the healing art stands, and has for some years past, high in France, cannot be denied. That its necessity to the welfare and comfort of mankind is recognized, is apparent from the advancement which has been made in its practice and the improvements which are constantly being introduced by the French profession generally.

About 1835, a law was enforced in France requiring of those desiring to practice the specialty of dentistry the production of a diploma of M. D., or that of *officeur de sante;* and in 1879 a society was organized styled "*Le Societe Syndicale des Dentists,*" with which many of the more prominent French practitioners have connected themselves, and there is every reason to believe that this society will do much toward the still greater elevation of the specialty, in whose interest there are two journals published at the present time in the French Republic. Recently, M. Tallebois submitted to the Municipal Council of Paris a petition for the appointment of dentists, whose duty it would be to give the pupils of the public schools professional attention gratuitously. The petition was favorably received, and an ordinance meeting its requirements was almost immediately passed, and it is believed that a similar law will be at no very distant day enforced in every city in the French Republic.

[To be continued.]

MICRO-ORGANISMS THE ESSENTIAL FACTOR IN DENTAL CARIES.

BY C. T. STOCKWELL, SPRINGFIELD, MASS.

[Read at the Saratoga Meeting, August, 1883.]

In a paper which was prepared about one year ago on the subject of Etiology of Dental Caries, I made an attempt to summarize the results of then recent investigations of certain chemists pertaining to this question which seemed to strongly controvert the grossly chemical theory that, up to that date, had been advocated and supported by a very large class of the profession. An attempt was also made to collate the results of microscopical observation and research, in relation to dental caries, by very eminent investigators. Very liberal quotations were made from their own reports and correspondence, showing a substantial agreement in, at least, the statement that "Micro-organisms play a very important part in every case of dental caries." Reference was also made to some of the results of scientific workers in the collateral branches of investigation that, in the opinion of the author, seemed to have an important bearing upon the inquiry under consideration.

The grouping, or orderly arranging of these facts—or what in the light of that stage of the investigation seemed to be facts—served to form a *premise* upon which was based a series of "inferences" that were deemed to be the *logical deductions* of said premises. That these inferences were opposed to the chemical and favorable to the germ theory must, it is still claimed, be chargeable to the stated facts by the different scientists quoted rather than to the *logic*.

This being true the "*inferences*" of that paper are, of course, open to such modifications as may be made necessary by any subsequent revelations of scientific investigation.

The discussion of the question of dental caries which has been so general during the past few months, not only in the dental journals throughout the world, but in nearly if not quite all the societies, is sufficient evidence of its interest and importance, and it is to be devoutly hoped that investigation and discussion may not cease until the character and definition of dental caries is clearly settled and understood.

To one who at all understands the claims of those who hold that micro-organisms are an essential factor in dental caries the *mis*understanding and confusion that appear in nearly all the discussions is amusing if not discouraging. Much of this misunderstanding and

confusion on the part of those who are reported as opposing the germ theory of dental caries arises, seemingly, from the lack of a clear, concise and sharp *definition* of caries, or, perhaps it may be said, from the confusion of ideas with reference to the distinction between—more or less remote—*predisposing conditions* and real caries itself. A great many things have been cited as *a* cause of dental caries, and—accepting the common understanding of the term—with a good deal of pertinence. In my own studies of this question the conviction has grown upon me that we ought to drop the use of the word "cause," or "causes" altogether. We *know* nothing of causes. When we attempt in real earnest to seek out the "*cause*" of any stated condition, we must at once find ourselves in a maze of phenomena reaching back indefinitely and infinitely into the great "before." We see, simply, phenomena, and know, only, that it is the sequence of a preceding phenomenon, a link in the endless chain of events, the *cause* of which is as unknown and unknowable as time and space to all save the "Great First Cause." From a given condition, or event, we may trace the *series* of phenomena, to a limited extent, and note what appear to be *essential factors* in the train, but we fail to reach the "cause" of the phenomenon. One stage of the process succeeds another in regular order and each *stage* may be labeled by an appropriate name implying the *state* of the process at a given point in its onward course.

What, then, is true dental caries? Just what is the condition of the tissues when in a carious state? The question, please note, is not: What is the "*exciting* cause" of caries? Neither is it: What are the predisposing conditions? The latter are legion. But, recognizing the long train of predisposing phenomena, just where and at what stage of the process does *real* caries begin? At what point, exactly, in the series of phenomena can a line be drawn at which we may say, here caries proper commences.

Let us remember that every destructive process is not caries; that a congenital defect is not caries; that abrasion or erosion is not caries; that a lowered "vitality" of a tooth is not caries; that the effect of "medicines," acids, etc., *without the intervention of some other factor*, is not caries; that even a tooth may, in part or as a whole, be dead and yet not carious. Without wishing to seem presumptuous, or attempting to force from the term an unwarranted definition, I will reiterate what I have several times stated and written as my convictions: *Dental caries does not begin until the putrefactive process of an*

organic portion of a tooth is set up. The putrefaction may be confined, if you please, to a single minute fibril, or a portion thereof, but even then, and not till then, can caries be said to have begun. Please note carefully that I do not use the term *fermentation.* Bear continually in mind the fact that there is a very important difference between the results, as well as the process, of fermentation and putrefaction, especially in so far as the two processes affect the teeth. Remember that the product of fermentation is always an *acid*, while the product of putrefaction is always *alkaline*, and that both processes are impossible when *micro-organisms* are eliminated. And so, when Magitot and his earnest disciples claim that the "exciting cause" of caries is an acid that results from the fermentation of food substances, they are at once confronted with the inevitable micrococcus as an essential factor to the process. The same is equally true with the putrefactive process. Whichever horn of the dilemma they seize hold of, the "*coccus*" is there and spoils the process if he is kicked out.

Even our friend, Dr. Watt, cannot inaugurate his hypothetical, nascent, nitric acid process without the indispensable help of the despised bacterium, much as he may wish to ignore or cover up the fact.

The theory—grossly chemical—formerly held by many, called the "pickling" process is no longer advocated; thus it appears that even in the *chemical* theory micro-organisms are an essential factor and among the foremost of factors, for the necessary fermentation process is dependent upon a certain class of low organisms, and if *they* are absent, or are destroyed by antiseptics, no caries can follow.

Let us now review, briefly, the investigations of our microscopists relating to this question. Have recent investigations made it necessary to materially modify the views held by "germ theorists" a year or so ago? From a careful reading of all these reports, and with a purpose to arrive at truth alone, I am forced to answer, No. To some of you who have studied the several very valuable papers of Dr. Miller—who alone has reported from this special field within the past year—this claim may seem unwarranted. The conclusion is based, mainly, upon his *observations* instead of his deductions.

In my paper of a year ago, the microscopical data was largely furnished by Messrs. Underwood and Milles, of London. You are, doubtless, so familiar with their report that any recapitulation will be unnecessary. Dr. Miller has amply confirmed and verified the observations of Messrs. Underwood and Milles. He has also entered into *details* to a greater extent than they, at least so far as their observa-

tions have been published, but he does not controvert their observations at a single point. Their *deductions* differ somewhat, it is true, but we have to do with *observations* not *deductions; facts*, as revealed by the microscope, not *opinions* of the various microscopists. And here allow me a little personal explanation. Dr. Watt recently stated that he does not consider me "an original investigator, or capable of becoming one." Very well; I am sure we agree in this most cordially. It has little to do, however, with the question at issue. I would simply remind him that I have nowhere, and on no occasion, claimed to be an "original investigator," but that, on the contrary, I have on different occasions, in private and in public, as well as in print, disclaimed any such pretense. I have simply made an effort to *collate* such facts as our best scientific investigators from the different fields have given us and, by grouping them together in relative order, have endeavored to ascertain if there existed such harmony as the laws of nature and science require. Law is always harmonious, and if a series of *claimed* facts do not harmonize, the *claim* is not well supported in reference to some one of them. Deductions made from a standpoint overlooking the various channels of scientific investigation are, perhaps, quite as likely to be in harmony with all the facts as those which are based upon a single line, however real the purpose may be to render an unbiased opinion. Great honor is due the earnest worker who wrests from the mysteries of nature new truths, but the natural results of all this human striving after knowledge may be summed up in one word: philosophy. Facts and philosophy go hand in hand—the latter being the simple sequence of the former—with every brain sufficiently active to apprehend the true import of the facts.

Now wherein do the observations of Dr. Miller differ from those of Messrs. Underwood and Milles? I cannot find that they differ in any essential particular. Dr. Miller has carried his investigations further and, as far as reported, with greater detail. They are especially valuable and reflect very great credit upon the investigator. He deserves the honor of the entire dental profession and, more than that, of the scientific world as well. It is no less valuable because it verifies the observations of the gentlemen previously referred to. He finds microorganisms present in all cases of decayed dentine, as did Messrs. Underwood and Milles. So overwhelmingly is this fact established that no man—to-day—dares deny or even question it. The only question now is as to the *details of their action*. Don't forget that fact. It is a very important point gained as the result of the discus-

sion of this question and introduces a new and stubborn factor into the consideration of the etiology of caries. There is one other point to be noted also, viz: *Nothing has been found beyond the organisms*, not even an acid or any combination of acids and lime-salts. This must be admitted, too, by all unbiased disputants, and should be kept constantly in mind and accorded its due weight and force. What, in brief, is the condition of decayed dentine as shown by the most recent investigations? In a general way, it may be stated as follows: There is, first, an outer layer, very irregular on its inner border, of infected dentine—dentine in which micro-organisms abound to a greater or less extent and to a greater or less depth. This outer layer or infected zone is succeeded by a territory of varying depth that *seems* to be free from organisms but in a somewhat *changed* condition—"softened," as Dr. Miller terms it. Under the glass it appears to have retained to but a limited extent the coloring matter with which the specimen was stained, gradually shading off less and less until the healthy or transparent border is reached. Beyond this layer is the non-affected or healthy dentine. In other words, there seems to be, in many cases at least, a territory of dentine between the portion that is *absolutely healthy* and the territory where *micro-organisms abound* that is *changed* somewhat, but not absolutely infected; and it is around this zone of changed, but not infected, dentine that the whole war of discussion and hypothesis now wages. Dr. Miller *supposes* it to be "softened" by acids or a "*something*" not yet known. Right here comes in his unknown quantity or factor, out of deference, I presume, to the investigations of Prof. Mayr, which demonstrate that no acids *are* there or *have been* there.

Again, what may be learned from general sources regarding the operations of bacteria and organisms of like character and habits? Upon what do these organisms live? What are they after? What do they consume as food? They certainly do not "chew up" lime-salts. Protoplasm, as with organic forms of every description, is the object of their search and natural pabulum, necessary for their maintenance and reproduction. This is taken by the process of osmosis or absorption as with plant life in general. Now let us look at the histology of a tooth for a moment. Wherein does the protoplasm of a tooth reside? In the bioplasson, or protoplasmic fibrils of Heitzmann and Bödecker and in the glue-giving connective tissue within the meshes of the bioplasson threads. This none can deny. No one has ever claimed that these organisms are to be found in *perfectly normal* den-

tine, but it is shown clearly that they are present in the tubules beyond the line where the *mechanical structure* is broken up.

This being true, namely, the presence of organisms at the terminal portions of the fibrils, and their activity in *absorbing the protoplasm from* the fibrils, what else could be expected than that, for a certain distance from the *actual presence* of the organisms, a changed appearance of the tissue should be the result as appears under a high magnifying power in the specimens of Dr. Miller's? That such specimens should show a slight opacity at this point, an atrophied condition, or even *devitalization* of the fibril or fibrils is, seemingly, a most reasonable conclusion; the least interposition of a "mysterious something," unknown and unknowable, is entirely unnecessary.

Thus it is easy to conceive that the masses of organisms in the outer layer, or zone, may first *devitalize* the bioplasson in the tissue immediately beyond their presence and, secondly, instigate the *putrefactive* process that follows in the wake of the devitalizing process. Instead of this being an *inflammatory* process—taking the common interpretation of the term—it may be the opposite; a condition or process better expressed by the use of the word atrophy.

To my own mind the phenomena shown in the investigations of Dr. Miller, and termed by him "the zone of softened dentine," is more satisfactorily explained in this way than by attributing it to some "mysterious unknown cause." The "unknown cause" *seems* to be sought for because of prejudice against the "bugs," and because it is recognized in the light of to-day that acids and all other heretofore ascribed causes fail to "fill the bill."

This explanation being even proximately true, we should expect to find a condition described by Dr. Miller in one of his latest articles, viz: "In all the preparations which I have examined with reference to this question I have met with very few cases where the boundary line between the infected and non-infected parts is not of the most tortuous and angular nature conceivable." Please bear this in mind when you read his remark that this "is a fact hard to reconcile with the germ theory of caries." It seems clearly reasonable that these minute organisms should invade a single tubule, or a series of them, deeper and faster than neighboring tubules, thus presenting the characteristic "tortuous and angular" surface or border line; whereas, if the invading agent was a destructive acid the *tortuosity* and *angularity* would never appear at all. If the germ theory is properly understood this condition of specimens would appear as a verification of

the theory instead of being "hard to reconcile" with it. It certainly does not harmonize with the acid theory.

I said that the cause of this "softened zone" of Miller is the question around which the war of discussion and hypothesis is being waged. Perhaps one other question should be included. It is said that in perfectly normal tissue it is not conceivable that micro-organisms should invade enamel without the previous action of an acid to open the way to the dental fibrils or, at least, to the interstices between the enamel rods. The trouble with this statement relates to the words "*perfectly normal*," or "*perfectly formed*," enamel. What is "perfectly formed" enamel? It may seem perfect to the unaided eye and yet be found far from perfect when examined with a microscope. A congenital defect as minute as the minutest micrococcus may be the fatal weak point which, with the favoring condition of a lowered vitality, will furnish a starting point sufficient to involve the destruction of the whole tooth. Just at this point especially comes in a general *mis*understanding of the position taken by those who hold that micro-organisms are an essential factor in dental caries. I, for one at least, have never denied that acids may be, and are, a destructive agent to teeth. I only claim that the effect of acids simply is not *caries*—that some other agent must come in before the process which is *properly* termed dental caries can be said to have begun, and that this agent is low organisms. I do not dispute the proposition that, if between two *perfectly* formed or sound teeth a particle of food substance is lodged, the product *may* be an acid as the result of the process of fermentation, and that this acid *may* dissolve lime-salts, thus opening the way to a more fatal putrefactive process. This is not denied as possible, or even probable, but we claim most positively that if all germs or organisms are excluded there would be no fermentation to produce the acid, or putrefaction to produce the more serious result, caries; so, in any case, the prophylactic treatment should be antiseptic. Furthermore, I claim with equal emphasis that while admitting the action of acids, such action should be classed with the *predisposing conditions favorable to* caries; that the action of acids alone cannot be considered a part of the process of true *caries* any more than a *congenital defect* or a *fracture* can be so considered. They stop short of caries. In other words, as previously stated, caries does not begin until the *putrefactive* process of an *organic* portion of a tooth is set up, and that this putrefactive process is dependent upon the action of low organisms; that a single

fibril, a series of fibrils, or even the whole tooth may be *dead*, yet in no sense *carious*. Just so long as the destructive process is confined to the action of an acid, or acids solely, no *caries* is present or possible. The result is simply an abrasion or erosion.

Of course we all admit a long and almost endless train of complex predisposing conditions ***favorable*** to caries, such as hereditary tendencies, congenital defects, a weakened "vitality," etc.; and all of these are to be considered as—in their proper place—relating to the phenomenon of caries; but, for practical purposes, we want to know what is the real, active, present devil with whom we are to grapple, and in the ***absence*** of which dental caries, in fact, is impossible. This real devil is embodied in the real, active, lower organism invariably found on the field of battle, and to the extent that he can be overcome or modified in action, to that extent caries will be overcome and modified and this general malady eliminated.

In ***absolutely*** perfect enamel I am ready to admit the probable necessity of a dissolving of the lime-salts in order that the organisms may gain access to the organic tissue; but *perfectly* formed enamel is an exception, not the rule of the present day. In such cases the following process may be suggested as, at least, possible: Micro-organisms of a certain class produce fermentation of food substances, etc., fermentation produces acids—the acids may dissolve lime-salts and, consequently, expose the organic tissue to another class or classes of organisms which, by absorbing the protoplasm of the tissue, devitalizes the tissue to a greater or less extent and thus prepares it for the action of bacteria termo, which organism sets up the *putrefactive* process when, and not before, caries proper can be said to have begun.

This, of course, is offered as a suggestion, merely, of the process. The *details* of the action of low organisms are not yet sufficiently determined to warrant any positive conviction. The point maintained is that micro-organisms are the ***essential factor*** in dental caries, and that in order to combat *it* successfully our treatment must be ***intelligently antiseptic.***

The true test of all theories is when they are put into actual practice. If an intelligent application of a theory fails to produce results in accordance with such theory, there is a mistake somewhere. If, on the other hand, the theory is applied strictly in accordance with the principles of such theory, and the results obtained are such as must be expected if the theory is based on scientific facts, then we have the verification of the theory.

Perhaps it would be asserting too much to claim that the germ theory as applied to dental caries has been thus verified in my own practice; but this I am prepared to say: I have results that were never obtained by any other means. And it is the testimony of many others also. One of these gentlemen is a veteran of over forty years' practice, who says that he now can practice intelligently and, as results show, with a certainty that he never before experienced.

If this can be said now when prophylaxis in accordance with the principles of this theory is in its very infancy, what may we not hope for when the whole question of the antiseptic treatment is reduced to an absolute scientific basis? Much has been done and more is being done in the scientific world along this line, and the antiseptic treatment as applied to dentistry will come in for its share of the results.

Take, for instance, carbolic acid: It is claimed by Dr. Koch, and other eminent authorities, that a stronger solution of this acid is necessary in order to be effective as a germicide than has been supposed. It has been stated that one twenty-fifth of one per cent. is sufficiently strong, but according to the experiments of Dr. Koch a five per cent. solution, at least, would seem to be necessary to destroy these organisms with the accompanying germs—a stronger solution being necessary to destroy *germs* than the organisms themselves. I allude to this fact simply to show that much still remains to be done in this direction, and that any failure to secure such results as we may expect may very well be ascribed to our yet imperfect knowledge of antiseptics, rather than to a fault of the theory per se. In this field we have a very interesting opportunity for study and experimentation, one that promises greater results to the dental practitioner in the way of prophylaxis than any other of which I can conceive, and one in which we, as a profession, should engage ourselves for the benefit of a suffering humanity.

CORROSIVE SUBLIMATE.

The antiseptic properties of this well-known and powerful drug, which were first made known by the researches of R. Koch, is now coming rapidly into general use. M. Tarnier employs it freely in his maternity hospital in Paris; every attendant on entering the labor ward must wash his hands and arms in a solution of corrosive sublimate (one in a thousand). The patient's genitals are bathed in a solution of the strength of one in two thousand; this is also the strength required for all vaginal injections.—*Medical Press.*

SOCIETIES.

THE TWENTY-NINTH ANNUAL MEETING OF THE AMERICAN DENTAL CONVENTION, HELD AT THE TOWN HALL, SARATOGA SPRINGS, N. Y., AUGUST 14, 15, AND 16, 1883.

(Continued from page 330.)

Discussion of Dr. Stockwell's paper. (See this number.)

Dr. S. A. WHITE: I am not prepared to discuss the paper. I only noticed in the mouths of patients whom I have treated for disease of the gums, using carbolic acid, that I had very little to do; by this fact my attention was first called to this treatment, and I found that after using this preparation, although I did not prescribe it as a prophylactic, that it did act so; I found also the same in the case of my children. A little boy of ours has had to suffer all his life; he had paralytic troubles, his temporary teeth were very much decayed, and I found the gums were in a diseased condition. I used this preparation of carbolic acid—1℥ carbolic acid, 2℥ glycerine, and 3℥ of water. I am safe to assert that it not only corrected the troubles about the teeth but it acted as a positive prophylactic to the decay of the teeth; that led me to make experiments in my practice, and I have been using the preparation of carbolic acid as a prophylactic against decay in those frail teeth that we meet with so often.

Prof. CHARLES MAYR: I am often asked, What is the best antiseptic? and even under the danger of not appearing original, I will repeat what I have said: The very best antiseptic is bichloride of mercury (H_gCl_2) or corrosive sublimate. I myself had once the opportunity to make a few though not very decisive experiments. The water in our city is very bad, and at one time the commissioners had quite a number of experiments performed about it. At that time I took some very bad water from the pond and carried it home to ascertain the trouble; it came from a peculiar water alga; the water which I had taken was about as thick as cream from this particular alga; I poured some of it in about half a dozen glasses, and for mere private interest I made a few experiments with poisonous substances. I poured in each of the glasses, holding 50 cem. (about two ounces), two drops of different poisonous substances. Well, the experiments as such were not conducted with all the scientific rigidity, and I did not keep any proper record of them, but some fifteen minutes after I had poured the two drops of the bichloride solution in the water, all

the little movements of the alga had ceased; while the one with the two drops of the solution of arsenic not only was not killed but did thrive more and kept longer than all the other solutions. Among the products of dry distillation, carbolic acid has been recognized as a very powerful antiseptic; there are several kinds of "carbolic acid," which form a kind of series, just as we have the fat acid series, to which formic acid, acetic acid, butric acid, stearic acid, etc., belong; these different carbolic acids differ from each other by a CH_3. The more CH_3 they contain the less they are soluble in water, but the greater seems to be their antiseptic power, so that you see for practical purposes the two just counterbalance each other.

Dr. F. Y. CLARK: To look superficially at a tooth, we often may pronounce it sound; but look at the same tooth with a powerful magnifying glass, and you would be astonished how porous it would appear to be. Where there is putrefaction you will find lower organisms; they are not animals, they are plants and live by absorption; if we dry the substance, they must cease to live. They absorb the bioplasm, disintegrate the lime-salts and cause the discoloration.

August 15—CLINIC.

Before the clinic, Dr. Rich showed his new water motor, which seems to work very satisfactorily and softly. Dr. Clifton, of London, England, showed a peculiar drill; to prevent the drill slipping through the nerve canal, it has a little enlargement back of the edge. Dr. Rynear, of New York, exhibited a collection of new caps, made according to a newly patented method. Dr. Rich's office contains a very attractive collection of live birds who sing and chirp while he is operating, and certainly do a great deal to draw away the attention of the patient. Such little devices are something more than essential in the success not only of a dentist but of other professional men.

Morning Session, August 15, *opened* 11.30 *A. M.*

President F. Y. CLARK in the chair.

Several communications are read, among others, one from Dr. Mills, declaring his inability to be present; also, Dr. Bartholomew, of Springfield, sent a dispatch that he could not be present. Dr. Ambler withdrew his paper in favor of one from Dr. Rynear, of New York.

[To be continued.]

EDITORIAL.

THE NEW ENGLAND DENTAL SOCIETY.

The annual meeting of this society occurred at Providence, R. I., on the 4th and 5th of October—President Fillebrown in the chair. That it was a most notable meeting, no one who was present will gainsay. It was notable in point of numbers present, notable for the large increase of its membership—some fifty new names were added to its list, notable for the adroitness and expedition of the presiding officers, notable for its harmony and singleness of purpose, notable for the completeness of its programme of proceedings and the undeviating manner in which it was adhered to, notable for the number present of high professional character and ability, notable for the industry and the lack of wasted moments, and, above all these essentials to a good meeting, it was notable for the high order of the papers read and the discussions that followed.

The chief interest centered about points of difference on histology and embryology between Prof. Garretson on one side and Drs. Williams, Andrews and Atkinson on the other. The difference was sharp, clear and earnestly stated, but as amicably discussed as earnestly stated and illustrated. It was an illustrious instance of "Doctors disagreeing," and in a most earnest and positive manner defending their positions, but "loving each other none the less." As the two papers are to be published we shall not attempt a report, but refer all interested to the full text. Prof. Garretson's paper we shall publish in our next number, and Dr. Williams' may be found in a future number of the Cosmos, profusely illustrated. Both of these papers deserve the earnest and careful study of the entire profession. We regret that we cannot give a verbatim report of the discussion on this subject, but as that is impossible we shall not attempt a condensation, for it would be impossibe to do it justice. Suffice it to say, that the position held by Prof. Garretson is based upon a "philosophical" view, while that of Dr. Williams is based upon actual and original microscopical work, largely from the human embryo. Perhaps it is simply viewing the matter from the "two sides of the shield," but, however it may be, a lively discussion is likely to follow by our experts in histology and embryology, and our "border line" of knowledge in reference to this matter is pretty sure to be carried outward a little into the misty realm that lies beyond.

In this connection, we can hardly refrain from a word of congratulation that our profession has come upon a time when the *chief* interest of its meetings is centered around questions like this, rather than as of only a few years since when if, perchance, some *prophet* happened among us and, in spite of ourselves, attempted to lift the veil that shrouds the "how" of our being, we listened to his—to us—meaningless words and looked our blank astonishment, or considered his burning, eloquent words as evidence of a "slight insanity" to be received only as a "good joke," to be laughed at as would the jargon of an innocent crazy man on the street corner. We are also to be further congratulated that our profession now numbers not a few men who are able, by virtue of their own investigations, to call in question the statements of accredited authorities, and demonstrate by undeniably good work the soundness of positions taken in *advance* of the literature of the present day along this most interesting line of original scientific investigation. It is to such men that the credit is due for the acknowledged advance of the standard of our profession, rather than to those who see virtue only in our meetings when they deal in the *methods* of performing some, so-called, practical work belonging to the daily routine of our professional duties. These are not to be overlooked; they should be commingled with the scientific; but that the scientific is coming to the *front* is a welcome and hopeful sign of the times and bespeaks a brighter outlook for the future of the profession.

Two other papers were read at this meeting: One by Dr. George A. Mills, on "Pyorrhœa Alveolaris, its Origin, Etiology and Treatment;" the other by Dr. George L. Parmele, subject, "Concerning Records," in which the Dr. described and illustrated his method of keeping a record of all his cases, without any books, but by means of an ingenious use of cards, properly and conveniently arranged in a compact and readily accessible manner. The method attracted a good deal of attention and, when properly understood, is seen to be simple, concise and very convenient, as well as novel. Our readers will have an opportunity to learn more of it at no distant day.

Prof. Garretson's paper was illustrated by numerous blackboard diagrams, and Dr. Williams' paper by a stereopticon, supplemented by a microscopic exhibition under the direction of Drs. Williams and Andrews—showing different stages of tooth development. "Subjects" for a clinic having failed to appear, the morning session of the second day was devoted to a discussion of some of the papers read,

the election of officers, incidents of office practice, exhibition of new implements, etc.

Remarks were also made by Dr. Fifield, a noted surgeon of Boston, and Dr. C. F. Terry, of Milan, Italy, an American who, after twenty years' residence and practice abroad, has returned to this country for a brief visit. We shall give the remarks of Dr. Terry to our readers in a future number of this journal.

The convention adjourned at one o'clock and proceeded to the Continental Steamboat Company's dock, where it embarked on the "Day Star" for a sail down the bay and a clam bake at Silver Springs, as the guest of the dentists of Rhode Island.

Boston was by vote chosen as the place for the next meeting one year hence.

The following are the officers for the ensuing year:

President, Dr. Wm. Barker of Providence; Vice-Presidents, Drs. James Lewis of Burlington, Vt., and J. B. Coolidge of Boston; Secretary, Dr. A. M. Dudley of Salem, Mass.; Treasurer, Dr. G. A. Gerry of Lowell, Mass.; Librarian, Dr. G. F. Waters of Boston. Executive Committee, Drs. D. M. Clapp of Boston, Thos. Fillebrown, Portland; F. Searle, Springfield; S. G. Stevens, Lynn; R. R. Andrews, Cambridge.

AN ANNOUNCEMENT.

For some weeks past certain changes relative to the future management of this journal have been contemplated which promise to be of interest to its readers. Plans are now so far matured as to warrant a partial announcement. The originators of the JOURNAL were of the opinion that it should have a personality and individuality entirely uninfluenced by the association of names connected therewith who were in any way connected with the profession in whose interests it is published. While this plan possesses many advantages, there exist obvious reasons that have led, finally, to a decision to announce the names of those who are, hereafter, to compose the editorial staff.

The success of the JOURNAL has thus far been such as to now warrant the effort to greatly extend its influence; and, believing in the wisdom of the old proverb, that "In the multitude of councilors there is safety," the "staff" has been somewhat increased so as to include therein the names of many well-known and eminent professional men—men who have at heart the best interest of the profession, believe in its advancement and are willing to "lend a hand," even

though it may be at the sacrifice of personal interests and should involve much labor. The list comprises the names of some who are engaged in original scientific investigation, while others are teachers and demonstrators of operative dentistry, or hold recognized positions as successful practitioners. Two have no practical connection with dentistry as a profession, one being a chemist, and the other a physician of large experience as a practitioner; but both are investigators of subjects largely allied to dentistry. All of these gentlemen are pledged to contribute to the success of the JOURNAL in the future and will endeavor to make it an essential to every progressive practitioner. For prospectus, see another page of this number.

THE CONN. VALLEY DENTAL SOCIETY.

The annual meeting of this society occurs at Springfield, Mass., on the 7th and 8th of November. An interesting programme is arranged and a good meeting is, as usual, sure to be realized.

Dr. J. L. Williams, of New Haven, Conn., will repeat the lecture he gave before the New England Society, at Providence, on Embryology, and it will be profusely illustrated by stereopticon views. This alone will amply reward any one for attending the meeting.

Dr. E. Parmely Brown will be present and exhibit, by clinic, his new "Crown."

The various sections are generally expected to have reports to present.

THE DENTISTS' MUTUAL AID SOCIETY.

The above society was formally organized, on the 18th of September last, at Kansas City, Mo., and, we are informed, starts off under favorable auspices, with every prospect of success.

The Constitution and By-laws are at hand and appear to have been carefully drawn up and the result of much care and good judgment. Full particulars may be obtained by addressing the Secretary, Dr. R. I. Pearson, 543 Delaware St., Kansas City, Mo.

Our readers of course know that the word "cotton-wood," on page 307, last number, was a misprint for *cotton-wool*. The types play ridiculous tricks sometimes in spite of the most painstaking proof reading.

OHIO STATE JOURNAL OF SEPTEMBER, '83.

"A word fitly spoken is like apples of gold," is the motto heading an essay of Dr. George Watt on "Nature and Ethiology of Dental Caries." What are apples of gold good for? For nothing else but to be recast and recoined into dollars. The comparison of Solomon may have been excellent for his time, though we cannot see what they used those apples of gold for, but to the modern mind they are not just the climax of usefulness, and if Dr. Watt's article is not worth more, it is not worth much. Dr. Watt wants his definition and classification of decay accepted, else no salvation! He talks of two varieties of decay—the one in which the cavity of decay contains soft semi-gelatinous material, the other decay he finds of black color. If men like Dr. Miller and others speak of decay, they never speak of anything else except the soft variety, at least we have not been able to discover in their writings anything which indicated that they had analyzed decay of black color. The experiences of all, except Dr. Watt, go to the effect that this black decay is very rare. Dr. Watt tries to make fun of what he himself calls self-evident truth, namely: that experiments tried out of the mouth are not of the same value as when tried in the mouth; that is at least the substance of it. If it is a self-evident truth, why does not Dr. Watt stick to it, and why does he try to prove that experiments tried out of the mouth are the same as experiments tried in the mouth? Dr. Watt's "books and papers were burned in 1866 and the records of over three thousand experiments and observations were consumed."

Dr. Watt has yielded a step. To the question, Acids or Germs? he answers, "both." He says that putrefaction will go on and totally destroy the body, even if no "maggots" present themselves. In accordance with a former statement of Dr. Watt about the size of microscopical organisms, we have to conclude that Dr. Watt means by maggots bacteria, and we ask Dr. Watt if he has the *very slightest proof* that putrefaction is possible without bacteria, or "maggots," as he calls them. He always talks as if these two, bacteria and putrefaction, were two separate things, so that we might have one without the other, separately. He has not learned anything within the last ten years, if he maintains that. After his records were burned he probably shut himself up and let the world go one way and Dr. Watt the other way. Dr. Watt makes a grossly chemical mistake in saying that dilute hydrochloric acid dissolves bone phosphates without decomposition. He has not read anything of the chemical experi-

ments of Thompson about what the latter calls chemical avidity. Dr. Watt says that hydrochloric acid is very often "found" in the mouth, a statement which must be well proved before it is worth reading; but how it is "formed in the mouth" we would like to know still more. Do people eat strong oxalic acid, or sulphuric acid, or nitric acid? It devolves on those who write about hydrochloric acid in the mouth to prove it, not on those who never found it.

We are glad if Dr. Watt occasionally experiences amusment and glad if he derives it from decayed cavities. Now, if a dentist were cutting chalk with his instrument, it would cut soft and pleasant, and if a man should tell him that he cuts a substance with 99% of inorganic salts, while dentine contains only 72%, he would, by the logic of Dr. Watt, have to suppose that the man who says that chalk has 99% of inorganic salts is wrong. From the very first, when we made our experiments about the decay of teeth, we made the statement that the lime-salts are not dissolved in advance of decay; only Dr. Watt seems not to have read this until now. If Dr. Watt has made all his recent studies at the same rate, he is now in the chemistry of 1855, since he says he commenced about 1854. We have to chew the statement so as to fit the mental digestion of Dr. Watt; it might be worded thus: The lime-salts are present in the innermost sections of the decayed mass. The experiments described many times plainly show how this is proved. Dr. Watt is continually lecturing on chemistry! He may have known something twenty years ago. We are right glad that Dr. Watt loves his "nascent," and protects his sweetheart with loving fondness against the rude attacks of certain periodicals. They are well matched his "nascent" and Dr. Watt. Dr. Watt seems to confound in a remarkable manner nitrous acid and nitrogen peroxide. About the conversion of ammonia into nitric acid, we would like to ask Dr. Watt, who certainly has in his laboratory—if it did not get burned too in 1866 and has since been supplied by talk and words—a bottle with ammonia continually exposed to the action of the air, if he has ever found nitrate of ammonia in the bottle, providing he kept the bottle containing the ammonia away from the bottle containing nitric acid. There is a first-class chance for the ammonia to combine with the oxygen and form nitric acid; even the alkali is present for the "nascent" acid to combine with, yet we get no nitrate of ammonia. Is it not singular? Might not one think that something may be wrong in the supposition of Dr. Watt? Dr. Watt lives on the sayings of chemical authorities; he only quotes half of them and

thinks his fancy can supply the rest, but this shows only an unscientific turn of mind. There is no science in which so much of any reaction, even the most fundamental one, depends on circumstances as in chemistry. To give Dr. Watt an example of what circumstances will do: Dr. Watt supposes that acetic acid can decompose carbonate of potassa. We can tell him that it does not under certain circumstances. If he does not know it, we will communicate it to him in the next number. We would be glad to agree with Dr. Watt that alkaline reaction in the mouth is due to the presence of ammonia, if it was proved; but, e. g., saliva is alkaline in its reaction, yet this alkalicity is certainly not due to ammonia. That sulphuric acid causes blackness of decay is certainly one of the most monstrous suggestions ever printed by a would-be scientific chemist in a dental journal; we can not use a milder word. From the connection of this sentence, it would not be unfair to suppose that he believes the black spots in the stomach, after poisoning with sulphuretted hydrogen, of which he speaks, to be due to the sulphuric acid produced out of the sulphuretted hydrogen. Dr. Watt only *talks* chemistry; he never seems to experiment in chemistry, for he would find without difficulty that the black spots in the stomach are sulphide of iron from the decomposed blood and no carbon. If Dr. Watt had ever made experiments as to what a concentration of sulphuric acid is needed to carbonize organic tissues, his own theory about the sulphuric acid blackening the decay in teeth would seem to him childishly absurd; but as long as he does all his chemistry in print, the real chemistry of facts and experiments will remain unknown to him. Dr. Watt seems to think that the phosphate in the teeth is not the neutral common salt. Please give the formula or composition in percentage. We are glad to hear of a new phosphate called "bone phosphate."—If we did not have our own fun in it, it would be too much like wasting time to talk chemistry with one who did not keep up his studies.—Dr. Watt says sulphuric acid is not capable of dissolving or decomposing those salts. Sulphuric acid of such a concentration that it does not act on the phosphates never occurs in the mouth except of suicides and children of nurses who thought they would give them a drink of syrup; therefore, all the talk about it is unnecessary. We are glad that we can agree with Dr. Watt in what he says about dental erosions; it is so simple that he himself gives the correct explanation of it. That starch and saccharine substances should undergo acetic fermentation in the mouth is very improbable, and the time required for that is much longer than

there is reason to suppose those substances to be left in the mouth. The most common acid of this fermentation is butyric acid. We are glad to say that, in spite of the little respect we may have of Dr. Watt, as a modern chemist, his journal contains much that is well worth reading, and that his zeal for theoretical investigation is worth its due; only we have to answer unfair attacks in a corresponding mood of mind. But Dr. Watt ought to be fair and he will find us as fair as he ever can be. Dr. Watt gives "a —— —— lie" to something in the "N. E. J. of Bovinity." If we were not already accustomed to poor boomerangs from Dr. Watt, we hardly could have made out what he meant. Now a journal of chemistry is not written by chemistry but about chemistry, etc. Thus, also, a journal of bovinity is not written by bovines but about bovines. How impolite would it be to mention in connection with this fact that we wrote more about Dr. Watt than any other man? Dr. Watt, if he grows older and wiser, will find that his saloon-style of writing is a two-edged tool which cuts more the handler than the would-be victim. Another of the most unfair quotations of Dr. Watt is in respect to an article of ours on alcohol, which was written for a reader who has enough intelligence to see that the passage, "with 30% water," was a misprint, and should have been "water with 30% alcohol." If Dr. Watt could detect nothing in the whole article except the misprint we are sorry that we have shot so far over his head. The Ohio Journal, on pages 443 and 444, publishes a whole list of misprints and errata occurring in one of its own numbers in one of the preceding months. Otherwise, we are glad to mutually advertise each other, but we love fairness, and it is always painful to have to reply in a strong way to an unfair or crude attack; but so long as many readers like to see a little fighting, and as Dr. Watt kindly furnishes us with weak points of his, we shall be exceedingly glad to accommodate them.

"NEW MODE VULCANIZER" IMPROVEMENTS.

We are credibly informed that at the suggestion of Dr. F. N. Seabury, of Providence, the manufacturers of "Campbell's New Mode Vulcanizer" will make some changes in its construction which will render its use less annoying and tedious, and the results obtained more uniform and satisfactory. Also, that with each improved vulcanizer will be furnished "A Book of Instructions" which will embody the results of patient, persistent, expensive and, finally, very successful and satisfactory efforts on the part of Dr. Seabury in his experience with "The New Mode."

WHO ARE "QUACKS?"

"The persistent student never becomes a quack. . . . . A very small proportion of the profession are careful readers of our dental periodicals—probably not more than one in ten. Without doubt a much larger number scan the journals for items of a practical sort, but never think of studying the matters of deeper import which require thought and patience for their comprehension and appropriation. Another class of persons, and probably comprising a greater number than either of those referred to, are those who usually confine their reading to the advertising pages. The latter two classes, and especially the last one, usually receive their journals as a gratuity. No dentist who has subscribed and paid for from two to four good dental journals, and carefully read them, can be a quack."—*Prof. Taft.*

A careful observer cannot think that Prof. Taft has underrated the number of the profession who "are *careful* readers of our dental periodicals." Strange as it may seem to the public in general, "one in ten" is probably all that the facts will allow. Are the *nine-tenths*, then, "quacks?" What is a quack? Perhaps "a medical pretender" is the best definition given, strictly applied; but, as commonly used, the word has a more general application. For instance, a dentist may be "a *medical* pretender" but an expert *mechanic*—men of such attainments are known in the profession—or one may be a *medical* expert but, nevertheless, a *mechanical* pretender—such instances are not unknown. Now, as far as *dentistry* is concerned, which is the quack? Perhaps neither; other considerations involved have to be taken into account. An expert in either department is pretty likely to be a "persistent student" of dental literature. To define a quack, however, as one who ignores the periodicals of his profession, is not far from the absolute truth. How can one who cares nothing for the "mirror of his profession" be anything else than a "pretender?" He, at least, soon gets a long way behind the "procession."

We know a dentist who, to an agent's yearly question: "What dental journals do you want this year?" always replies, "*Send them all.*" We hardly need to say that this man has a State-wide reputation as a most successful dentist. He simply commands patronage by virtue of his merit as a practitioner, and defies competition. He certainly is no quack, and the public know it.

Another case: We were requested a few days since, by a farmer, to

procure for him a copy of *Tyndall's Floating Matter of the Air*, a notice of which he had somewhere seen. Now a *quack* farmer may readily ask: What on earth does a *farmer* want of *such* a book? Well, we happen to know something of this farmer, and we know that the purchase and careful perusal of many such books is not uncommon. We happen to know, too, that he gets five cents per pound more for his butter, more per bushel for his beets, turnips, potatoes, etc., than his neighbors, who think he is an "odd fellow" to suppose that books have anything to do with farming, and that a library is a waste of money and time. They fail to see any connection between the *books* and the *extra five cents* per pound for his butter.

Now these are two simple instances that will bear some thought by those who think the literature of their profession is a thing of no importance. Success to-day depends upon the exercise of the brain along the *optics*, directed towards the "Outermost rim, and beyond," of scientific thought and investigation. The possessor of such a brain, whatever his special calling, is sure to be no quack.

MONATSSCHRIFT DES VEREINS DEUTSCHER ZAHNKUNSTLER.

(Monthly Journal of the Association of German Dentists.)

The journal is something of an organ of the German dental societies. It contains reports of societies from all parts of the empire. We think that there are hardly as many members of dental societies in Germany as there are societies in America. A very interesting article on amalgams is published, in which a list of analyses is given, as made by Dr. E. S. Wood, of Harvard. This list may have been published before, but we think it worth publishing again. We do not, of course, warrant the correctness of these figures.

Arrington's Amalgam—Silver, 40%; Tin, 60%.

Diamond Amalgam—Silver, 31.76; Tin, 66.74; Gold, 1.50.

Hood's Amalgam—Silver, 34.64; Tin, 60.37; Gold, 2.70; Iron, 2.90

Johnson & Lund's Amalgam—Silver, 38.27; Tin, 59.58; Platinum, 1.34; Gold, 0.81.

Lawrence's Amalgam.—Silver, 47.87; Tin, 33.68; Copper, 14.91; Gold, 3.54.

Moffit's Amalgam—Silver, 35.17; Tin, 63.01; Gold, 2.82.

Townsend's Amalgam—Silver, 40.21; Tin, 47.54; Copper, 10.65; Gold, 1.06.

Townsend's Improved—Silver, 39.00; Tin, 55.69; Gold, 5.31.

Walker's Amalgam—Silver, 34.89; Tin, 60.01; Platinum, 0.96; Gold, 4.14.

The following formula has been given by Dr. Ambler-Tees and is said to give excellent results:

Tin, 40 parts by weight.
Silver, 24 parts by weight.
Gold, 1 " "
Platinum, 1 " "

Gold, silver and platinum are first melted together with borax and kept liquid for five minutes; the tin is melted in a separate crucible and then the molten mixture of silver, gold and platinum is poured into the molten tin; the mass is speedily cast into suitable moulds and with a coarse file comminuted.

Two dollars received during the month of November will entitle every new subscriber to the NEW ENGLAND JOURNAL OF DENTISTRY from November, 1883, to December, 1884, inclusive.

BOOKS AND PAMPHLETS.

PROCEEDINGS OF THE CONNECTICUT MEDICAL SOCIETY,

At the Ninety-Second Annual Convention, 1883. Published by the Society—C. W. CHAMBERLAIN, M. D., Secretary, Hartford.

Dr. Chamberlain, after faithful service as secretary of this society for eight years, has now resigned, his last duty being the editing of this valuable volume of 235 pages, which is excellently printed in clear type. It will be extremely difficult, if not impossible, to find the man who will serve so acceptably in the position so long occupied by him. The marked improvement in the transactions since his election, as well as the unprecedented prosperity of the society during the past eight years, reflect great credit upon him. The volume contains a number of good papers upon a variety of subjects. The president's address, by W. G. Brownson, M. D., of New Canaan, entitled "The Country Doctor," graphically portrays, in verse, the trials and experiences of this hard-working son of Esculapius. Following this is the report of the committee on matters of professional interest in the State, containing, among many interesting cases, the history of a rare and peculiar case of chronic ulcerative laryngitis, reported by C. W.

Chamberlain, M. D. An illustrated paper by Prof. M. C. White, M. D., of New Haven, describes a new and improved form of micro-spectroscope.

Among the essays, which are on such subjects as "Aspiration of the Chest in Pleurisy," by Wm. H. Holmes, of Waterbury; "Complications in Labor," by F. N. Braman, M. D., of New London; "On the Nature and Treatment of Varicocele," by M. H. Henry, of New York city, is one by Geo. L. Parmele, M. D., D. D. M., of Hartford, entitled "Some Points in Oral Surgery of Interest to the General Practitioner," which treats of diseased conditions of the teeth and their surrounding tissues, as influencing through their nervous connections, the general health of the individual, causing dyspepsia, diarrhœa, constipation and other allied troubles. It urges the importance to the physician of a more extended investigation in a field of such interest in its relation to disease in general, and which might render more clear to them many obscure nervous troubles. It calls attention to the importance of the preservation of the deciduous teeth as aids to digestion during the years of growth and development, also to the deformities resulting from thumb-sucking, and touches, in closing, on the subject of extraction of teeth during pregnancy.

Embodied with the Transactions, are obituary notices of those who have died during the year, an alphabetical, and a list by counties, of members, a list of presidents since organization (1792) and of officers and fellows since 1876; also the code of ethics of the American Medical Association, charter and by-laws of the society, and an act to prevent irregular medical practice lately passed by the State Legislature. The society numbers 460 members. It has been decided to reprint the proceedings of the society for the first twenty-five years of its existence (1792 to 1811). Dr. Lewis of Hartford has what is believed to be the only complete set of Transactions in existence.

"An Examination into the Condition of the Teeth of Certain Pre-Historic American Races." By W. C. Barrett, M. D., D. D. S., Buffalo, N. Y. A reprint from the Independent Practitioner for October, 1883.

This very interesting paper is the result of a visit, in June last, by Dr. Barrett to the Peabody Museum of Archæology, at Cambridge, Mass. We trust that this is, as we infer, but the introduction to a series of papers by the same author on this subject, and that he may be able to spend other "vacations" in pursuing the study of the history written on these "dry bones," collected for the benefit of science. Material having been furnished so largely, the figures and statistics available should not be allowed to go by default, and Dr. Barrett will earn the gratitude of the profession if he succeeds in tabulating all the facts to be found therein.